



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/563,124

01/03/2006

Koji Abe

MAM-071

1181

20374 7590 09/04/2008

KUBOVCIK & KUBOVCIK  
SUITE 1105  
1215 SOUTH CLARK STREET  
ARLINGTON, VA 22202

EXAMINER

HAN, KWANG S

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

09/04/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/563,124	ABE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kwang Han	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/3/06 and 6/25/08</u> .                                      | 6) <input type="checkbox"/> Other: ____.                          |

Art Unit: 1795

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement filed June 25, 2008 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. Reference CN 1277468 did not include any English translation stating the relevance of the document. It has been placed in the application file, but the information referred to therein has not been considered.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Hamamoto et al. (US 6436582).
5. Regarding claim 10, Hamamoto is directed towards a nonaqueous electrolyte solution containing 1 wt% of a sulfonyl-containing compound (Column 2, Lines 31-54; Column 7, Lines 7-11).

The intended use of the solution is not given patentable weight.

It is noted a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand

Art Unit: 1795

alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 2, 4, 5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamamoto et al. (US 6436582) in view of Cho et al. (US 2003/0087155).

Art Unit: 1795

Regarding claims 1 and 2 Hamamoto et al. is directed towards a nonaqueous electrolyte secondary battery (Column 1, Lines 9-13) comprised of the following:

- a negative electrode containing a graphite material as the negative active material (Column 4, Lines 7-16), and
- an electrolyte containing 1 wt % of a sulfonyl-containing compound (Column 2, Lines 31-54; Column 7, Lines 7-11).

Hamamoto et al. discloses a cathode material comprised of lithium cobalt oxide (Column 3, Line 63-64) but is silent towards the group IVA and IIA elements.

Cho et al. teaches a secondary battery comprised of a lithiated intercalation compound (positive active material) [0009, 0011] which includes oxide coating compound comprised of elements from group IVA element (zirconium) and a group IIA element (magnesium) for the benefit of providing structural stability and improved cycle-life characteristics [0003, 0010].

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Cho's combination of cathode materials in Hamamoto's cathode material for a secondary battery for the benefit of providing structural stability and improved cycle-life characteristics for positive active material.

Regarding claim 4, Hamamoto et al. discloses a sulfonyl-containing compound that is 1,4 butanediol dimethanesulfonate (Column 2, Lines 49-53).

Regarding claim 5, Hamamoto et al. discloses 1,4 butanediol dimethanesulfonate in an amount at 1 wt% (Column 7, Lines 7-11).

Regarding claim 7, Hamamoto et al. discloses a nonaqueous electrolyte solution containing diethyl carbonate (Column 3, Lines 27-28).

Art Unit: 1795

10. Claim 3, 6, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamamoto et al. in view of Cho et al. as applied to claim 1 above, and further in view of Hibara et al. (JP 2002-158035, online translation).

Regarding claims 3 and 11, the teachings of Hamamoto et al. and Cho et al. as discussed above are herein incorporated. Hamamoto and Cho are silent towards the use of a vinylene carbonate in the electrolyte.

Hibara et al. teaches the use of vinylene carbonate within the electrolyte composition for a nonaqueous electrolyte for a secondary battery [0052] in an amount ranging from 0.05 to 5 wt% [Claim 5] for the benefit of providing an electrolyte that better suppresses reduction decomposition of the electrolyte [0051, Abstract].

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Hibara's vinylene carbonate in the electrolyte of Hamamoto et al. for the benefit of better suppressing reduction decomposition of the electrolyte.

It has been held that where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (MPEP 2144.05)

Regarding claim 6, the teachings of Hamamoto et al. and Cho et al. as discussed above are herein incorporated. Hamamoto et al. and Cho et al. are silent towards the use of a divinyl sulfone in the electrolyte for the secondary battery.

Hibara et al. teaches the use of divinyl sulfone [0048-0050; Claims 5, 8] in a nonaqueous electrolyte for a secondary battery in an amount between 0.05 to 1 wt % for the benefit of providing control for the reduction peak [Abstract].

Art Unit: 1795

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Hibara's divinyl sulfone in Hamamoto modified by Cho's nonaqueous electrolyte for the benefit of providing control for the reduction peak.

It has been held that where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (MPEP 2144.05)

11. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamamoto et al. in view of Cho et al. as applied to claim 1 above, and further in view of Ogino et al. (US 5153082).

Regarding claims 8 and 9, the teachings of Hamamoto et al. and Cho et al. as discussed above are herein incorporated. Hamamoto et al. and Cho et al. are silent as to a charge capacity ratio at a specified potential.

Ogino et al. teaches a nonaqueous electrolyte secondary battery in which the negative electrode and positive electrode materials are selected to vary the charge capacity [Abstract]. It is further taught that the electrodes thicknesses can be varied to adjust the capacity ratio (Column 7, Lines 47-59) to improve the charge/discharge and overdischarge properties (Column 8, Line 65-Column 9, Line 4) thereby teaching it as a result effective variable.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Ogino's charge capacity variations in Hamamoto's battery for the benefit of improving the charge/discharge and overdischarge properties.

The courts have held that optimization of a results effective variable such as the ratio of charge capacity between a positive and negative active material is not novel. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

***Contact/Correspondence Information***

Art Unit: 1795

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./  
Examiner, Art Unit 1795

/Susy Tsang-Foster/  
Supervisory Patent Examiner, Art Unit 1795